UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,917	03/31/2004	Michael Colin Begg	34-125	5698

23117 7590 03/10/2009

NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER	
TUGBANG, ANTHONY D	
ART UNIT	PAPER NUMBER
3729	
MAIL DATE	DELIVERY MODE
03/10/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/812,917	BEGG, MICHAEL COLIN	
	Examiner	Art Unit	
	A. Dexter Tugbang	3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 September 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3 and 5-11* is/are pending in the application.

4a) Of the above claim(s) *5 and 8-10* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,6,7 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

In light of the "Decision on Petition" letter mailed on May 5, 2008, the finality of the last Office Action (mailed on May 12, 2008) has been withdrawn. Accordingly, the amendment filed on September 11, 2008 has been fully considered, entered, and made of record.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Election/Restrictions

In light of the "Decision on Petition" letter mailed on September 30, 2008, the restriction requirement is hereby maintained. There will be full consideration given to Claims 8, 9, and 10, if at some point generic Claim 6 is found to allowable at some point during prosecution.

Accordingly, **Claims 5 and 8 through 10 remain withdrawn** from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on November 13, 2006.

Claim Rejections - 35 USC § 103

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over the AAPA in view of Takahashi 5,349,744.

The AAPA (on pages 1-3 of the specification) discloses that it is well known and conventional to make at one shim coil, if not a plurality of them. The AAPA does not necessarily say how the shim coil is manufacturing.

Takahashi discloses a coil manufacturing process that comprises: forming a coil pattern (e.g. 16a or 16b) from a sheet of electrically conductive material (e.g. 10) by punching with dies (10, 11); and attaching the punched pattern of conductive material to an insulating substrate (e.g. insulating sheets 18 or 20 and core 9) to form an MRIS coil (see anyone of embodiments of Figures 10, 11 or 13). The advantage of the coil manufacturing process of Takahashi is that it at least allows greater positional accuracy of the coil (col. 2, lines 6-8).

It would have obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of the AAPA by forming the MRIS shim coil with the coil manufacturing process of Takahashi for the advantage of greater positional accuracy.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the AAPA in view of Takahashi, as applied to Claim 1 above, and further in view of Nakamura 6,052,627.

The AAPA, as modified by Takahashi, discloses the claimed manufacturing method as relied upon above in Claim 1, further including punching with a punching machine (e.g. dies). The modified AAPA method does not mention that the punching machine is a CNC punching machine.

However, to add computer numerical controls, i.e. CNC, to the punching machine of Takahashi is just the latest in the state of the art of punching machines to allow machining with automation and greater accuracy. As evidence of obviousness, see Nakamura (Fig. 3, col. 27, lines 47+). It would have obvious to one of ordinary skill in the art at the time the invention was

made to have modified the method of the AAPA by adding CNC controls to the punching machine of Takahashi, to simply allow greater automation and machining accuracy.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of the AAPA, Takahashi, and Hoppe et al 5,946,198.

The AAPA discloses that it is conventional and well known to manufacturing a plurality of MRIS shim coil windings. The AAPA does not necessarily mention how the MRIS shim coil windings are made.

Takahashi discloses a coil manufacturing process that comprises: creating a coil winding (e.g. 16a or 16b) from a sheet of electrically conductive material (e.g. 10) along spaced apart paths; removing cut-away material along the paths with punching with dies (10, 11) to leave space; and subsequently affixing remaining portions of the conductive material to an insulating substrate (e.g. insulating sheets 18 or 20 and core 9) to form an MRIS coil (see anyone of embodiments of Figures 10, 11 or 13). The advantage of the coil manufacturing process of Takahashi is that it at least allows greater positional accuracy of the coil (col. 2, lines 6-8).

Hoppe discloses a coil manufacturing process of creating plural adjacent positioned coil windings (e.g. 2 in embodiments of Figs. 5, 7, 8 or 12) by punch-cutting a continuous sheet of electrically conductive material along spaced apart paths (col. 4, lines 7+) for the advantage of manufacturing a greater number of coil windings within one manufacturing process, thus saving time.

It would have obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of the AAPA by utilizing both of the coil manufacturing processes of Takahashi and Hopper, for each of their associated advantages.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over the AAPA in view of Takahashi, as applied to Claim 1 above, and further in view of LaPlante et al.

The AAPA, as modified by Takahashi, discloses the claimed manufacturing method as relied upon above in Claim 1, further including leaving bridge portions between lengths of conductive material in the cut pattern and removal of bridging portions ***before*** attachment of the punched pattern to the substrate (see Hoppe et al). However, the modified AAPA method does not state that removal of the bridging portions occurs ***after*** attachment of the punched pattern to the substrate.

LaPlante shows a coil making process that comprises: a first punch-cutting step where bridges of material (i.e. copper material initially formed between windings via a copper sheet in Fig. 5) are left along the cutting paths during formation of the windings, to maintain the adjacent as-cut positions of the coil windings while on the insulating substrate (block 204 in Fig. 2) followed by a second cutting step of cutting, i.e. removing, off the bridges (i.e. copper material in-between windings on the same side of the substrate in Fig. 5) completely to form an electrical separation between the adjacent winding conductors thus formed.

There are several associated advantages of the LaPlante coil making process, which is to:

1) allow patterning of the coil windings at a high resolution with a higher density (see abstract);

2) provide a cost effective and simplified manufacturing process (col. 1, lines 64-66); and

3) provide thermally stable coil windings (col. 2, lines 1-5).

It would have obvious to one of ordinary skill in the art at the time the invention was made to have modified the AAPA method with the coil making process of LaPlante, for anyone of, or all of, the associated advantages of LaPlanta.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of the AAPA, Takahashi, and Hoppe et al, as applied to Claim 6 above, and further in view of La Plante et al, for the same reasons noted in the rejection of Claim 11 above.

Response to Arguments

The applicant(s) arguments with respect to Claims 1, 6, 7 and 11 have been considered, but are moot in view of the new ground(s) of rejection set forth above.

Conclusion

The applicant(s) amendment (**filed on September 11, 2008**) necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 571-272-4570. The examiner can normally be reached on Monday - Friday 8:15 am - 4:45 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on 571-272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. Dexter Tugbang/
Primary Examiner
Art Unit 3729

March 5, 2009